



Assessment Quiz



Post-Assessment

Question # 3 of 7

Time Left: 77 sec(s)

The equation $y''(t) + 2y'(t) - 4y = 86$ is a non homogeneous second order differential equation ?

Select the correct option

Isolated Math Equations

True



False



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 6 of 7

Time Left: 53 sec(s)

The complementary function shall have two but Repeated exponential terms in case of Repeated Real Roots ?

Select the correct option

 Reload Math Equations

☐	False
☒	True

Click to Save Answer & Move to Next Question

ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 5 of 10 (Start time: 03:36:30 PM, 19 January 2024)

Which of the following is the correct option for consumption function, $C = a + \beta Y$?

Select the correct option

- | | |
|----------------------------------|---|
| ☒ | All of the given options |
| ☐ | Consumption is positively related with income (Y) |
| ☐ | β is the marginal propensity of consumption |
| ☐ | It has autonomous consumption a |



Assessment Quiz



Post-Assessment

Question # 7 of 7

Time Left: 79 sec(s)

The equation will have two and different exponential terms with negative sign for the dynamic stability in case of repeated Real Roots?

Select the correct option

[Reload Math Equations](#)

False



True

[Click to Save Answer & Move to Next Question](#)

equation will have two different exponential terms with negative sign for the stability in case of Real Roots?

False

There will be real and imaginary value in roots for the case of repeated real roots?

False

The second order differential equations with $a_1^2 - 4a_2 = 0$ will have distinct real roots?

False

The complementary function in case of repeated Real roots shall have two but different exponential terms?

False



Assessment Quiz



Post-Assessment

Question # 2 of 7

Time Left: 81 sec(s)

The complementary function in case of Complex Roots shall have two but Complex exponential terms ?

Select the correct option

 Locked with Equations

☐	False
☒	True

Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 6 of 7

Time Left: 82 sec(s)

The complementary function shall have one but Complex exponential terms in case of Complex Roots ?

Select the correct option

[Reload Math Equations](#)

True



False

[Click to Save Answer & Move to Next Question](#)

Assessment Quiz

Post-Assessment

Question # 1 of 9

The Unemployed individual $U(t)$ will be 160 in unemployment equation $U(t) = 70e^{-3t} + 90$ when time $t=0$?

Select the correct option

☒	False
☐	True



Post-Assessment

Question # 5 of 6

The phase diagram a graphical method to test the dynamic stability of the system ?

Select the correct option

☒	True
☐	False



Type here to search



Post-Assessment

Question # 2 of 9

The particular solution of the equation is 80 in unemployment equation $U(t) = 40e^{3t} + 80$?

Select the correct option

☐	False
☒	True



Type here to search



Post-Assessment

Question # 6 of 6

The equation, $\frac{dy}{dt} + ty = ty^2$ can be solved with Bernoulli equation method ?

Select the correct option

☒	True
☐	False

Post-Assessment

Question # 1 of 6

The equation $\frac{dy}{dt} + Ry = Ty^m$ assuming $m=0$ is a non linear homogeneous differential equation ?

Select the correct option

☒	True
☐	False



ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 4 of 10 (Start time: 03:35:00 PM, 19 January 2024)

Which of the following is the incorrect option for the money market equation, $\alpha Y + \beta \frac{dy}{dt} = M_s$?

Select the correct option

- | | |
|----------------------------------|--|
| ☐ | The standard first order differential equation can be used |
| ☐ | The value of income (Y) will be inversely related money supply (M_s) |
| ☐ | All of the given options |
| ☒ | The value of money supply (M_s) will be constant |

Which of the following is the correct option for the dynamic stability in case of Distinct Real Roots?

Select the correct option

- | | |
|----------------------------------|---|
| ☒ | The equation will have two and different exponential terms with positive sign |
| ☐ | None of the given options |
| ☐ | The equation will have two and similar exponential terms |
| ☐ | The equation will have two and no exponential terms |



Assessment Quiz

Post-Assessment

Question # 1 of 7

Time Left:

The equation $y''(t) + y' + 2y = 0$ is a homogeneous second order differential equation ?

Select the correct option

[Reload Math Eq](#)

False



True

[Click to Save Answer & Move to Next Ques](#)



Assessment Quiz



Post-Assessment

Question # 7 of 7

Time Left: 79 sec(s)

The equation will have two and different exponential terms with negative sign for the dynamic stability in case of repeated Real Roots?

Select the correct option

[Related Math Equations](#)

☒	False
☐	True

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz



Post-Assessment

Question # 6 of 7

Time Left: 53 sec(s)

The complementary function shall have two but Repeated exponential terms in case of Repeated Real Roots ?

Select the correct option

 Reload Math Equations

False



True



Click to Save Answer & Move to Next Question

ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 7 of 10 (Start time: 03:38:45 PM, 19 January 2024)

Which of the following is the correct option for the $y^{-m} \frac{dy}{dt} + Ry^{1-m} = T$ assuming $m > 1$?

Select the correct option

- | | |
|----------------------------------|---|
| ☐ | None of the given options |
| ☒ | It is a non linear differential equation which have been converted from linear equation |
| ☐ | If it is inexact differential equation, it will be solved in four steps |
| ☐ | It is first order homogeneous differential equation |

ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 3 of 10 (Start time: 04:12:09 PM, 19 January 2024)

Which of the following is the correct option for the equation, $V(t) = 1000e^{-0.04t} + V(0)$?

Select the correct option



It is first order differential equation with general solution



It is first order first degree differential equation with definite solution



The equation represent a modified form of elasticity of oil extraction



It is homogeneous first order differential equation

Post-Assessment

Question # 3 of 7

In the equation, $y''(t) + \alpha_1 y' + \alpha_2 y = b$ The particular solution y_p will be equal to t if $\alpha_1 = 0$, $\alpha_2 = 0$?

Select the correct option

☒	False
☐	True



Type here to search





Assessment Quiz



Post-Assessment

Question # 1 of 6

Time Left: 81 sec(s)

The solution will have a hybrid of distinct and complex roots for the complementary solution equation: $a_0 y''(t) + a_1 y'(t) + a_2 y(t) = b$?

Select the correct option

Reload Math Equations

☐	False
☒	True

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz

Post-Assessment

Question # 3 of 7

Time Left:

There will be real and imaginary value in roots for the case of repeated real roots?

Select the correct option

Reload Math Eq

True



False



Click to Save Answer & Move to Next Ques



Assessment Quiz



Post-Assessment

Question # 4 of 7

Time Left: 54 sec(s)

The second order differential equations with $a_1^2 < 4a_2$ will have repeated real roots?

Select the correct option

 Reload Math Equations

False



True

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz



Post-Assessment

Question # 4 of 7

Time Left: 54 sec(s)

The second order differential equations with $a_1^2 < 4a_2$ will have repeated real roots?

Select the correct option

[Reload Math Equations](#)

False



True

[Click to Save Answer & Move to Next Question](#)

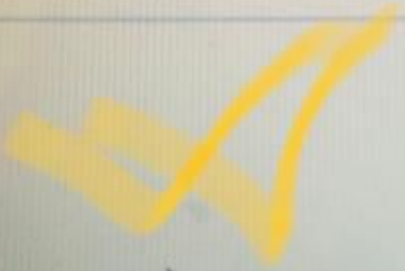
Post-Assessment

Question # 4 of 7

The equation $y^n(t) + \alpha_1 y^{n-1} + \dots + \alpha_{n-1} y^1(t) + \alpha_n y = b$ is a non linear differential equation where b causes non linearity?

Select the correct option

☒	True
☐	False





Assessment Quiz



Post-Assessment

Question # 7 of 7

Time Left: 82 sec(s)

In second order differential equations with $a_1^2 = 4a_2$ there will be repeated real roots?

Select the correct option

[Reload Math Equations](#)

☐	False
☒	True

[Click to Save Answer & Move to Next Question](#)

Post-Assessment

Question # 2 of 6

The capital function, $K(t) = 200(t+4)^2$ represents the time path of the capital stock over time?

Select the correct option

☒	True
☐	False





Assessment Quiz



Post-Assessment

Question # 5 of 6

Time Left: 87 sec(s)

The second order differential equation with constant coefficient and variable terms i.e L.H.S is the $f(t)$ will change both complementary and particular solution?

Select the correct option

[Reload Math Equations](#)

☐	True
☒	False

[Click to Save Answer & Move to Next Question](#)

Post-Assessment

Question # 2 of 7

The equation, $y''(t) + \alpha_1 y' + \alpha_2 y = b$ if $b < 0$ is first order homogeneous differential equation?

Select the correct option

☒	False
☐	True



Assessment Quiz



Post-Assessment

Question # 3 of 6

Time Left: 86 sec(s)

The dynamic stability of higher order differential equation by Routh Theorem is not based on the calculation of characteristic roots ?

select the correct option

Reload Math Equations

True



False

[Click to Save Answer & Move to Next Question](#)

Post-Assessment

Question # 3 of 6

The marginal product of labor and capital, $MP_K = 3LK$ and $MPL = 5LK$; assuming it is on an Iso-quant ($dQ=0$) cannot be used to apply the exactness test ?

Select the correct option

☐	True
☒	False

Day: (Sun) (Mon) (Tue) (Wed) (Thu) (Fri) (Sat)

The term of price equation dp/dt is a rate of change in price over time?

True

The term of price equation $(dp/dt + d^2p/dt^2)$ is slope of rate of change in price?

False

It will increase the demand Q_d at increasing rate in equation of price $Q_d = a - \beta p + mp' + np''$ when $m > 0$?

False

It will increase the demand Q_d at increasing rate equation of price $Q_d = a - \beta p + mp' + np''$ when $m = 0$ and $n = 0$?

False

The dynamic stability of price equations when $n = 0$ requires $A_1 = 0$? $P'' + \frac{m}{P} P' + \left[-\frac{B+\delta}{n}\right] P = -\frac{a+r}{n}$

False

Post-Assessment

Question # 4 of 6

The equation, $LK + 2KL = 0$ It is first order first degree non homogeneous differential equation ?

Select the correct option

☒	False
☐	True



Type here to search



Question # 9 of 10 (Start time: 04:16:48 PM, 19 January 2024)

Which of the following is the correct for first difference equation; $y_t = Ab^t + y_p$ If $b < 0$?

Select the correct option

- | | |
|----------------------------------|--|
| ☐ | The equation will have no deviation from particular solution |
| ☒ | The equation will converge towards particular solution |
| ☐ | The equation will be dynamically convergent |
| ☐ | The equation will be dynamically divergent |

Question # 5 of 10 (Start time: 04:13:34 PM, 19 January 2024)

Which of the following is the correct option for the dynamic stability of price equation; When $n > 0$? $P'' + \frac{m}{n}P' + \left[-\frac{\beta + \delta}{n}\right]P = -\frac{\alpha + \gamma}{n}$

Select the correct option

☐

The system will dynamically stable with $A_1 > 0$ and $A_2 = 0$

☒

The system will dynamically unstable with $A_1 = 0$ and $A_2 > 0$

☐

The system will be dynamically undefined

☐

The system will dynamically stable with $A_1 = 0$



Assessment Quiz



Post-Assessment

Question # 7 of 7

Time Left: 52 sec(s)

In second order differential equations with $a_1^2 = 4a_2$, there will be repeated real roots?

Select the correct option

Reload Math Equations

False



True



Click to Save Answer & Move to Next Question

Which of the following is the correct option for the dynamic stability in case of Distinct Real Roots?

Select the correct option

☐

None of the given options

☐

The equation will have two and similar exponential terms

☒

The equation will have two and different exponential terms with positive sign

☐

The equation will have two and no exponential terms



Assessment Quiz



Post-Assessment

Question # 6 of 7

Time Left: 52 sec(s)

The complementary function shall have one but Complex exponential terms in case of Complex Roots ?

Select the correct option

Related Math Equations

True



False



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 6 of 6

Time Left: 87 sec(s)

Method of Undermined Coefficients requires that the variable term and its successive derivatives together contain only a finite and same types of expressions ?

Select the correct option

[Reload Math Equations](#)

False



True

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz



Post-Assessment

Question # 1 of 6

Time Left: 81 sec(s)

The system will dynamically unstable when repeated real roots are negative in Phillips equation;
 $\frac{d^2r}{dt^2} + \beta k(\frac{dr}{dt}) - j(g-1)(\frac{dr}{dt}) + j\beta km = j\beta km$ considering repeated real roots ?

Select the correct option

Reload Math Equations

True



False



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 4 of 6

Time Left: 84 sec(s)

Considering the possible cases of Phillips equation $dn/dt = j(p - n)$ it is possible that $j > 1$?

Select the correct option

Reload Math Equations

True



False



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 1 of 6

Time Left: 76 sec(s)

The particular solution will be a constant value in the equation; $y'' + 4y' + 4y = 2t^2 + 2t + 12$?

Select the correct option

Reload Math Equations

False



True



Click to Save Answer & Move to Next Question

Post-Assessment

Question # 1 of 6

The equation can be applied to confirm the exactness test $(M) dy + (N) dt = 0$?

Select the correct option

☐	False
☒	True



Type here to search





Assessment Quiz



Post-Assessment

Question # 4 of 6

Time Left: 86 sec(s)

Method of undetermined coefficients will be used to calculate complementary solution in the equation; $y'' + 3y' + 3y = 3t^2 + 3t + 12$?

Select the correct option

Reload Math Equations

False



True

[Click to Save Answer & Move to Next Question](#)

Post-Assessment

Question # 3 of 6

The equation, $\frac{dy}{dt} + u(t) \cdot y = w(t)$ is first order differential equation with variable term and variable coefficient

Select the correct option

☐	False
☒	True



Type here to search



ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 1 of 10 (Start time: 04:10:28 PM, 19 January 2024)

Which of the following is the correct option for the complementary function in case of Distinct Real Roots?

Select the correct option

- | | |
|----------------------------------|--|
| ☒ | The equation will have two and different exponential terms |
| ☐ | The equation will have two and similar exponential terms |
| ☐ | The equation will have two and no exponential terms |
| ☐ | The equation can be solved with exact differential equation method |



Assessment Quiz



Post-Assessment

Question # 4 of 6

Time Left: 87 sec(s)

Inflation will decrease when productivity (τ) increases in the Phillips equation $p = \alpha - \beta U - \tau$?

Select the correct option

Reload Math Equations

True



False



Click to Save Answer & Move to Next Question



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NOTE: You will not be able to change your schedule once CONFIRMED.

Sr. No.	My Courses	Exam Dates	Exam Time	Confirmation Status
1	ECO607 - Mathematical Economics II	Monday, February 12, 2024	Start Time: 10:00am	CONFIRMED
2	MTH604 - Dynamics	Wednesday, February 14, 2024	Start Time: 10:00am	CONFIRMED
3	MTH603 - Numerical Analysis	Tuesday, February 20, 2024	Start Time: 12:00pm	CONFIRMED
4	MTH631 - Real Analysis II	Monday, February 19, 2024	Start Time: 10:00am	CONFIRMED
5	MTH633 - Group Theory	Friday, February 16, 2024	Start Time: 10:00am	CONFIRMED
6	MTH643 - Introduction to MATLAB	Thursday, February 22, 2024	Start Time: 10:00am	CONFIRMED
7	STA301 - Statistics and Probability	Saturday, February 24, 2024	Start Time: 10:00am	CONFIRMED

Get Examination Password and Entrance Slip

Post-Assessment

Question # 4 of 9

The quantity supplied of sale function $Q(t)$ will be 700 in the quantity supply of a sale function, $Q(t) = -300e^{-0.04t} + 400$ when time $t=0$?

Select the correct option

☐	True
☒	False

Post-Assessment

Question # 5 of 9

There is a particular solution to the equation equals to 400 in the ore mining function, $M(t) = 400e^{0.02t}$?

Select the correct option

☐	True
☒	False



Type here to search





Assessment Quiz



Post-Assessment

Question # 6 of 6

Time Left: 84 sec(s)

The term of price equation (dp/dt) is rate of change in price over time ?

Select the correct option

Reload Math Equations

☒	True
☐	False

Click to Save Answer & Move to Next Question

Post-Assessment

Question # 6 of 9

The equation, $G(t) = 500e^{-0.03t}$ is first order first degree non homogeneous differential equation?

Select the correct option

☒	False
☐	True

Post-Assessment

Question # 8 of 9

The time path should converge towards the complementary solution for dynamic stability in the pollution function given by $P(t) = 30e^{-0.2t}$?

Select the correct option

☒	False
☐	True



Assessment Quiz



Post-Assessment

Question # 6 of 7

Time Left: 83 sec(s)

The complementary function in case of Repeated Real Roots shall have two but different exponential terms ?

Select the correct option

Solved Math Equations

False



True



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 4 of 7

Time Left: 84 sec(s)

The second order differential equations with $a_1^2 - 4a_2 < 0$ will have complex roots?

Select the correct option

Reload Math Equations

☐	False
☒	True

Click to Save Answer & Move to Next Question

Post-Assessment

Question # 3 of 9

Fuel usage $F(t)$ will be 6000 litre in Fuel usage equation, $F(t) = 8000e^{0.001t} - 6000$ at time $t=0$?

Select the correct option

☒	False
☐	True

Post-Assessment

Question # 3 of 6

The equation $\frac{dy}{dx} + Ry = Ty^m$ assuming $m < 1$, is a non linear differential equation where Y^m causes non linearity?

Select the correct option

☒	True
☐	False

Post-Assessment

Question # 1 of 6

The equation, $xy \cdot dx + 12x \cdot dy = 0$ and the function $U(x,y) = 0.5xy - c$ can be solved without using exactness test?

Select the correct option

☐	False
☒	True

Post-Assessment

Question # 9 of 9

The Government Expenditure equation, $dG/dt = -0.02 G$ is a first order homogeneous differential equation?

Select the correct option

☒	True
☐	False



Post-Assessment

Question # 7 of 9

The complementary function will converge to 10 for the dynamic stability of the time-path of fish stock function $F(t) = -30e^{-0.12t} + 10$?

Select the correct option

☒	True
☐	False



Type here to search



Post-Assessment

Question # 2 of 6

The equation $y^{-m} \frac{dy}{dt} + Ry^{1-m} = T$ assuming $m > 1$ is a non linear differential equation which have been converted from linear equation ?

Select the correct option

☒	True
☐	False



Type here to search



Post-Assessment

Question # 4 of 6

The equation $\frac{dk}{dt} + \lambda k = sk^\alpha$ if $\alpha = 1$ can be solved with exact differential equation method?

Select the correct option

☐	False
☒	True

Ques
Given that X is normally distributed and given sample values $\sum (x - \bar{x})^2 = 2.576$, and $n=10$. Find the 95% confidence interval for σ^2 .

We are given that
 $\sum (x - \bar{x})^2 = 2.576$, $n=10$, $v=n-1=9$
 $1-\alpha = 95\% = 0.95 \Rightarrow \alpha = 1-0.95 = 0.05$
 $\frac{\alpha}{2} = \frac{0.05}{2} = 0.025 \Rightarrow 1-\frac{\alpha}{2} = 1-0.025 = 0.975$
 we have to find

$$\frac{\sum (x - \bar{x})^2}{\chi^2_{\frac{\alpha}{2}, v}} < \sigma^2 < \frac{\sum (x - \bar{x})^2}{\chi^2_{1-\frac{\alpha}{2}, v}}$$

$$\frac{2.576}{\chi^2_{0.025, 9}} < \sigma^2 < \frac{2.576}{\chi^2_{0.975, 9}}$$

23 / 40

$$\frac{2.576}{19.02} < \sigma^2 < \frac{2.576}{2.70}$$

$$0.135 < \sigma^2 < 0.95$$

(24)

Ques
Given that X is normally distributed and given the sample values $\bar{x}$, $S=5$ and $n=20$. Find the 90% confidence interval for σ^2 .



Assessment Quiz



Post-Assessment

Question # 6 of 7

Time Left: 83 sec(s)

The complementary function in case of Repeated Real Roots shall have two but different exponential terms ?

Select the correct option

Reload Math Equations

False



True



Click to Save Answer & Move to Next Question

Question # 2 of 10 (Start time: 04:11:29 PM, 19 January 2024)

Which of the following is the correct option for second order differential equation with constant coefficient and variable terms i.e L.H.S is the $f(t)$

Select the correct option

☐

It will change the particular solution

☒

It will change both complementary and particular solution

☐

It will change the complementary solution

☐

The value of particular solution cannot be calculated



Assessment Quiz



Post-Assessment

Question # 1 of 6

Time Left: 82 sec(s)

The terms of price equation ($dp/dt + d^2p/dt^2$) is slope of rate of change in price over time ?

Select the correct option

[Reload Math Equations](#)

- | | |
|----------------------------------|-------|
| ☒ | False |
| ☐ | True |

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz



Post-Assessment

Question # 6 of 6

Time Left: 82 sec(s)

It will increase the demand Q_d at increasing rate in the equation of price $Q_d = a - \beta P + mP^2 + nP^3$ when $m > 0$?

Select the correct option

[Reload Math Equations](#)

☐	True
☒	False

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz



Post-Assessment

Question # 5 of 6

Time Left: 84 sec(s)

It will increase the demand Q_d at increasing rate in the equation of price $Q_d = a - \beta P + mP^* + nP^{**}$ when $m=0$ and $n=0$?

Select the correct option

Reload Math Equations

☐	True
☒	False

Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 5 of 6

Time Left: 86 sec(s)

The term original Phillips relation refers to relationship of money supply and GDP?

Select the correct option

Reload Math Equations

False



True



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 5 of 6

Time Left: 82 sec(s)

The system will be dynamically stable when complex root (h) is negative in Phillips equation:
 $\frac{d^2x}{dt^2} + \beta k(\frac{dx}{dt}) - j(g-1)(\frac{dx}{dt}) + j\beta km = j\beta km$ considering complex roots ?

Select the correct option

Reload Math Equations

☒	True
☐	False

Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 2 of 6

Time Left: 86 sec(s)

Considering the Phillips equation $\frac{dn}{dt} = j(p - n)$ when $j = 0$; implies that expected inflation has no role in determining actual inflation ?

Select the correct option

Reload Math Equations

False



True



Click to Save Answer & Move to Next Question

ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 3 of 10 (**Start time: 03:33:53 PM, 19 January 2024**)

Which of the following is the correct option for $Mdy + Ndt = 0$?

Select the correct option

- | | |
|----------------------------------|--|
| ☐ | None of the given options |
| ☐ | The equation is used to solve out the non linear differential equation |
| ☐ | The equation cannot be used to find out the definite solution of the variables |
| ☒ | The equation can be applied to confirm the exactness test |

Post-Assessment

Question # 7 of 7

The second order differential equations measure average relationship over time?

Select the correct option

☐	True
☒	False



Type here to search



10°C



Assessment Quiz



Post-Assessment

Question # 3 of 7

Time Left: 77 sec(s)

The equation $y''(t) + 2y'(t) - 4y = 56$ is a non homogeneous second order differential equation ?

Select the correct option

[Reload Math Equations](#)

True



False

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz

Post-Assessment

Question # 3 of 7

Time Left:

There will be real and imaginary value in roots for the case of repeated real roots?

Select the correct option

Reload Math Eq

True



False



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 3 of 7

Time Left: 81 sec(s)

The case of repeated real Roots will be emerged when $a_1^2 - 4a_2 \geq 0$?

Select the correct option

Reload Math Equations

True



False



Click to Save Answer & Move to Next Question

Assessment Quiz

Post-Assessment

Question # 5 of 6

The utility equation, $3xy \cdot dx + x \cdot dy = 0$ cannot be used for the exactness test ?

Select the correct option

☐	True
☒	False



Type here to search



100%

Post-Assessment

Question # 6 of 7

The equation $y''(t) + y' + 5y = 0$ is a homogeneous second order differential equation?

Select the correct option

☐	True
☒	False





Assessment Quiz



Post-Assessment

Question # 2 of 7

Time Left: 81 sec(s)

The complementary function in case of Complex Roots shall have two but Complex exponential terms ?

Select the correct option

 Reload Math Equations

False



True



Click to Save Answer & Move to Next Question

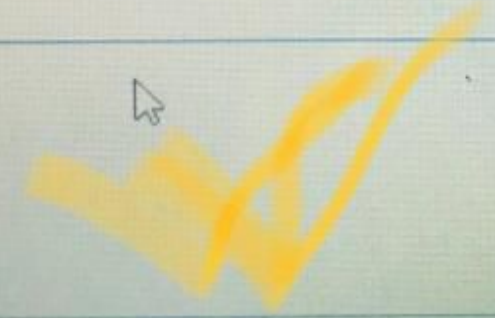
Post-Assessment

Question # 5 of 7

The equation $y^n(t) + \alpha_1 y^{n-1} + \dots + \alpha_{n-1} y^1(t) + \alpha_n y = b$ is second degree differential equation with nth order ?

Select the correct option

☒	True
☐	False



Assessment Quiz

Post-Assessment

Question # 6 of 6

The marginal product of labor and capital, $MP_k = 2L$ and $MPL = 1.2LK$; assuming it is on an Iso-quant ($dQ=0$); if it is exact differential equation, it will be solved in four steps?

Select the correct option

☒	True
☐	False

Click to Save Answer



Type here to search



10°C Haze

ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 4 of 10 (Start time: 04:12:50 PM, 19 January 2024)

Which of the following is the correct option for the equation, $\frac{dQ}{dP} + 2P = -11$?

Select the correct option

☐	All of the given options
☐	The equation represent a modified form of elasticity of demand
☒	Integration can be used to find value of Q as dependant variable
☐	First order differential equation is not applicable as Q is independent variable

ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 6 of 10 (Start time: 03:37:46 PM, 19 January 2024)

Which of the following is the incorrect option for the equation, $\frac{dY}{dt} + \frac{1-\beta+\tau\beta-\delta}{\gamma}Y = \frac{\alpha}{\gamma}$?

Select the correct option

- | | |
|----------------------------------|--|
| ☐ | It is first order second degree differential equation |
| ☐ | All of the given options |
| ☒ | It is first order third degree differential equation |
| ☐ | The equation represent a modified form of elasticity of investment |



Assessment Quiz

Post-Assessment

Question # 1 of 7

Time Left:

The equation $y''(t) + y' + 2y = 0$ is a homogeneous second order differential equation ?

Select the correct option

[Reload Math Eq](#)

False



True

[Click to Save Answer & Move to Next Question](#)

ECO607 – Mathematical Economics II (Quiz No. 03)

Question # 6 of 10 (Start time: 04:14:44 PM, 19 January 2024)

Which of the following is the correct option in the equation, $\frac{dy}{dt} + 3ty = ty^2$?

Select the correct option

- | | |
|----------------------------------|--|
| ☒ | It is first order non homogeneous differential equation |
| ☐ | The equation can be used for the exactness test |
| ☐ | It is a non linear differential equation |
| ☐ | It is the definite solution of the first order non homogeneous differential equation |



Assessment Quiz



Post-Assessment

Question # 6 of 6

Time Left: 87 sec(s)

Method of Undetermined Coefficients requires that the variable term and its successive derivatives together contain only a finite and same types of expressions ?

Select the correct option

Linked Search Equations

☒	False
☐	True

[Click to Save Answer & Move to Next Question](#)



Assessment Quiz



Post-Assessment

Question # 1 of 6

Time Left: 81 sec(s)

Depending on the value of discriminant in the $P'' + \frac{a}{x}P' + \left[-\frac{b+b}{x}\right]P = -\frac{a+1}{x}$, the nature of roots of characteristic equation gets defined. This will lead to three cases of particular solution?

Select the correct option

Reload Math Equations

False



True



Click to Save Answer & Move to Next Question

Post-Assessment

Question # 5 of 6

The non linear differential equation cannot have power of dependent variable other than one?

Select the correct option

☐	True
☒	False



Type here to search





Assessment Quiz



Post-Assessment

Question # 7 of 7

Time Left: 86 sec(s)

The second order differential equations with $u_1'' - 4u_2 = 0$ will have distinct real roots?

Select the correct option

Reload Math Equations

True



False



Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 2 of 6

Time Left: 83 sec(s)

The dynamic stability of price equation: $P'' + \frac{m}{n}P' + \left[-\frac{\beta+\delta}{n}\right]P = -\frac{\alpha+\gamma}{n}$ When $n=0$ requires that $A_1 = 0$?

Select the correct option

[Reload Math Equations](#)

☐	True
☒	False

[Click to Save Answer & Move to Next Question](#)

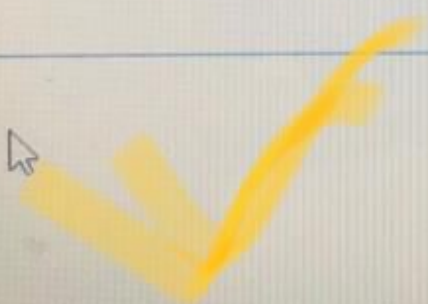
Post-Assessment

Question # 6 of 6

The equation, $\frac{dy}{dt} + u(t) \cdot y = 0$ is first order first degree non homogeneous differential equation?

Select the correct option

☒	True
☐	False



Post-Assessment

Question # 1 of 7

The equation will have two and different exponential terms for the complementary function in case of Distinct Real Roots?

Select the correct option

☐	False
☒	True



Type here to search



Post-Assessment

Question # 4 of 6

The equation $y(t) = Ae^{\int u(t) dt}$ is the definite solution of the first order non homogeneous differential equation?

Select the correct option

☒	False
☐	True



Type here to search



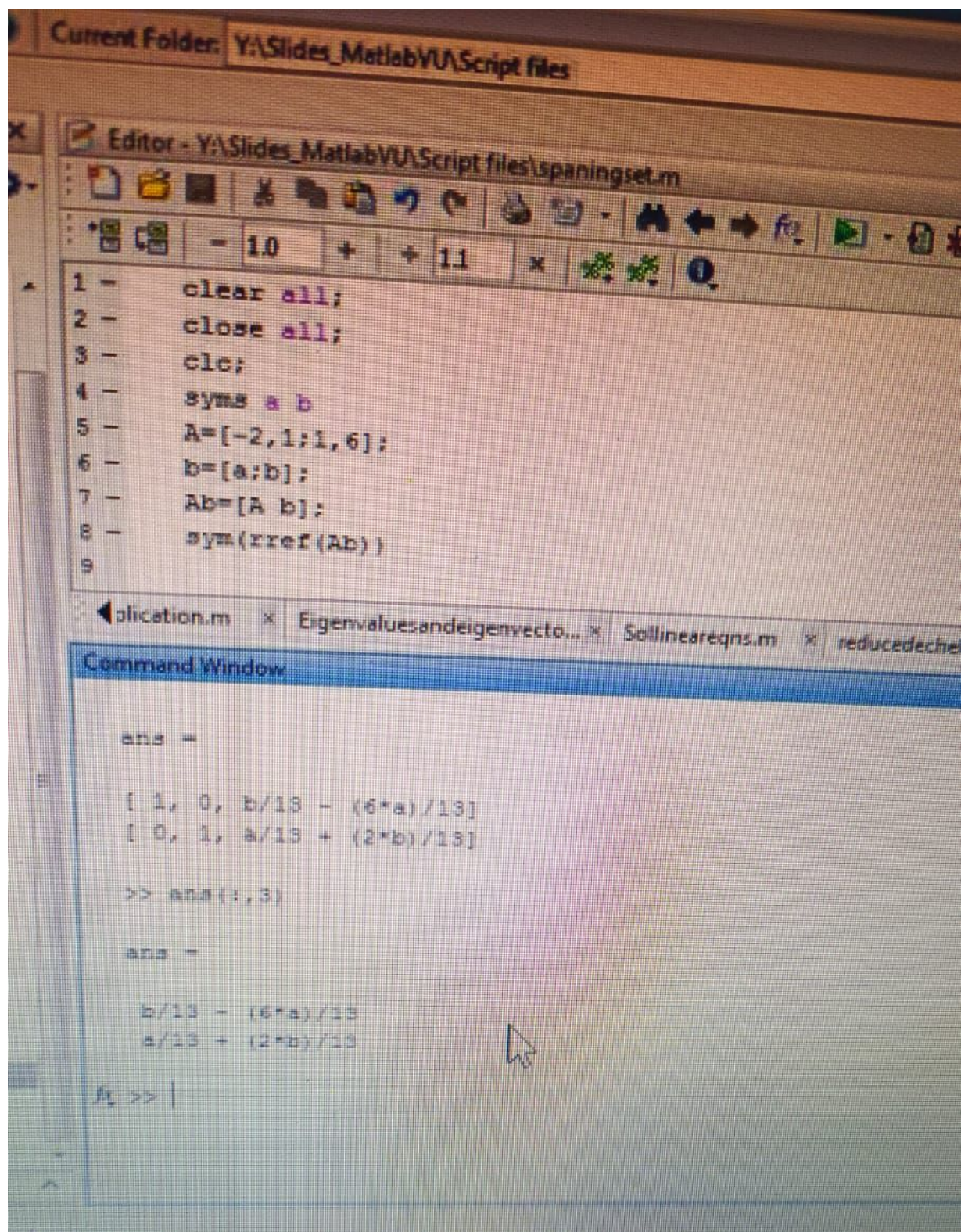


Figure: MATLAB code to determine the span of a set of vectors



Assessment Quiz



Post-Assessment

Question # 5 of 7

Time Left: 79 sec(s)

The zero value of the discriminant $a_1^2 - 4a_2$ will lead to repeated real roots for the case of repeated real roots ?

Select the correct option

Reload Math Equations

True



False



Click to Save Answer & Move to Next Question

Question # 9 of 10 (Start time: 03:41:34 PM, 19 January 2024)

Which of the following the the incorrect option for the case of repeated real roots?

Select the correct option

- | | |
|----------------------------------|--|
| ☒ | The value of root will be negative for dynamic stability |
| ☐ | The zero value of the discriminant $a_1^2 - 4a_2$ will lead to repeated real roots |
| ☐ | The positive value of the discriminant $a_1^2 - 4a_2$ will lead to repeated real roots |
| ☐ | The value of the roots will be equal to each other |

Which of the following is the correct option for the Phillips equation $d\pi/dt = j(p - \pi)$ When $j > 0$?

Select the correct option

☐

Actual Inflation is more than expected inflation

☐

Actual Unemployment is than expected inflation

☐

Actual inflation and expected inflation are independent from each other

☒

Actual Inflation is less than expected inflation

Question # 10 of 10 (Start time: 04:17:26 PM, 19 January 2024)

Which of the following is the incorrect option for the possible cases of Phillips equation $d\pi/dt = j(p - \pi)$?

Select the correct option



$j = 0$



$j > 1$



$j < 0$



$j > 0$

Assessment Quiz

Post-Assessment

Question # 6 of 6

The equation can be applied to confirm the exactness test $(M) dy + (N) dt = 0$?

Select the correct option

☒	True
☐	False



Type here to search



Question # 8 of 10 (Start time: 03:40:10 PM, 19 January 2024)

Which of the following is the correct option for the equation; $a_0 y^n(t) + a_1 y^{n-1}(t) + \dots + a_{n-1} y' + a_n y = b$ if $a_n = 0$ and $a_{n-1} < 0$?

Select the correct option

☐The particular solution will be equal to b/a_n ☒The particular solution will be equal to $(b/a_{n-1})t$ ☐The particular solution will be equal to b/a_2 ☐The complementary solution will be equal to b/a_2



Post-Assessment

Question # 4 of 6

Inflation will decrease when productivity (τ) increases in the Phillips equation $p = \alpha - \beta U - \tau$?

Select the correct option



☐	False
☐	True



Click to Save Answer & Mark



Post-Assessment

Question # 3 of 6

The system will be dynamically stable when complex root (h) is negative in Phillips equation;
 $\frac{d^2\pi}{dt^2} + \beta k(\frac{d\pi}{dt}) - j(g-1)(\frac{d\pi}{dt}) + j\beta km = j\beta km$ considering complex roots ?

Select the correct option



☐	True
☐	False



Click to Save Answer & Mark



Assessment Quiz



Post-Assessment

Question # 6 of 6

Time Left: 87 sec(s)

Method of Undermined Coefficients requires that the variable term and its successive derivatives together contain only a finite and same types of expressions ?

Select the correct option

[Reload Math Equations](#)

☒	False
☐	True

[Click to Save Answer & Move to Next Question](#)

equation will have two different exponential terms with negative sign for the stability in case of Real Roots?

False

There will be real and imaginary value in roots for the case of repeated real roots?

False

The second order differential equations with $a_1^2 - 4a_2 = 0$ will have distinct real roots?

False

The complementary function in case of repeated Real roots shall have two but different exponential terms?

False



Assessment Quiz



Post-Assessment

Question # 6 of 6

Time Left: 83 sec(s)

The solution will have a hybrid of distinct and complex roots for the complementary solution equation; $a_0 y^n(t) + a_1 y^{n-1}(t) + \dots + a_{n-1} y' + a_n y = b$?

Select the correct option

[Reload Math Equations](#)

False



True

[Click to Save Answer & Move to Next Question](#)

Assessment Quiz

Post-Assessment

Question # 6 of 6

Time L

Considering the Phillips equation $\frac{d\pi}{dt} = j(p - \pi)$ when $j = 0$; implies that expected inflation has no role in determining actual inflation ?

Select the correct option

Reload Math

☐	False
☐	True

Click to Save Answer & Move to Next Qu



Assessment Quiz



Post-Assessment

Question # 5 of 6

Time Left: 85 sec(s)

The particular solution will be a constant value in the equation; $y'' + 4y' + 4y = 2t^2 + 2t + 12$?

Select the correct option

Reload Math Equations

☒	False
☐	True

Click to Save Answer & Move to Next Question

Assessment Quiz

Post-Assessment

Question # 5 of 6

The system will dynamically unstable when repeated real roots are negative in Phillips equation $\frac{d^2\pi}{dt^2} + \beta k \left(\frac{d\pi}{dt} \right) - j(g-1) \left(\frac{d\pi}{dt} \right) + j\beta km = j\beta km$ considering repeated real roots ?

Select the correct option

☐ False☐ True

Click to Save Answer & Move to Next Question

Assessment Quiz

Post-Assessment

Question # 3 of 4

If the particular solution of first difference equation; $Y_p = 6$; there will be a stepped equilibrium ?

Select the correct option

Re

False



True



Click to Save Answer & Move



Assessment Quiz

Post-Assessment

Question # 1 of 6

Time Left: 66 sec

The dynamic stability of higher order differential equation by Routh Theorem is not based on the calculation of characteristic roots ?

Select the correct option

Reload Math Equations

False



True



Click to Save Answer & Move to Next Question



Post-Assessment

Question # 1 of 6

Considering the possible cases of Phillips equation $d\pi/dt = j(p - \pi)$ it is possible that $j > 1$?

Select the correct option



☐	True
☒	False

Click to Save Answer & Mark

Assessment Quiz

Post-Assessment

Question # 2 of 4

The tools of analysis will include lags and leads in first order difference equation ?

Select the correct option

☐	False
☒	True

Click to Save Answer



Post-Assessment

Question # 1 of 4

Capital stock is an example of first difference equation ?

Select the correct option

☐	False
☒	True

Click to See



Question # 1 of 6

The term original Phillips relation refers to relationship of money supply and GDP?

Select the correct option

☒	False
☐	True

Click to Save Answer & M



Date / /

✓ The second order differential equations with $a_1^2 - 4a_2 < 0$ will have complex roots?

True
The complementary function in case of complex roots shall have two but complex exponential terms?

✓ The case of repeated real roots will be emerged when $a_1^2 - 4a_2 > 0$?

False
✓ The equation $y''(t) + 2y'(t) - 4y = 66$ is a non homogeneous second order differential equation?

True
✓ The zero value of the discriminant $a_1^2 - 4a_2$ will lead to repeated real roots for the case of repeated real roots.

True

The dP/dt in

The $(dP/dt + aP)$ rate of

It w
Qd at
equation
 $mp' + r$

✓ It
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✓ Th
pro



Assessment Quiz



False

price $Q_d = \alpha - \beta P + mP' + nP''$ when π

Correct

Depending on the value of discriminant in the

 $P'' + \frac{m}{n}P' + \left[-\frac{\beta+\delta}{n}\right]P = -\frac{\alpha+\gamma}{n}$, the nature of roots of characteristic equation gets defined. This will lead to three cases of particular solution ?✓ -
Correct



Assessment Quiz



Post-Assessment

Question # 4 of 6

Time Left: 82 sec(s)

The second order differential equation with constant coefficient and variable terms i.e L.H.S is the $f(t)$ will change both complementary and particular solution?

Select the correct option

Reload Math Equations

☒	False
☐	True

Click to Save Answer & Move to Next Question



Assessment Quiz



Post-Assessment

Question # 3 of 6

Time Left: 81 sec(s)

Method of Undermined Coefficients requires that the variable term and its successive derivatives together contain only a finite and same types of expressions ?

Select the correct option

Reload Math Equations

☐	True
☒	False

Click to Save Answer & Move to Next Question

sment Quiz

ost-Assessment

Question # 4 of 4

If the particular solution of first difference equation; $Y_p = 7t$; there will be a stepped equilibrium ?

Select the correct option

 Reload

True



False



Click to Save Answer & Move to





Assessment Quiz



Post-Assessment

Question # 2 of 6

Time Left: 78 sec(s)

Method of undetermined coefficients will be used to calculate complementary solution in the equation; $y'' + 3y' + 3y = 3t^2 + 3t + 12$?

Select the correct option

Reload Math Equations

True



False



Click to Save Answer & Move to Next Question

Date: / /

Day: / /

lecture # 29

✓ In second order differential equations with $a_1^2 = 4a_2$ there will be repeated real roots?

True

✓ The complementary function shall have two but repeated exponential terms in case of repeated Real roots?

True

The second order differential equations with $a_1^2 < 4a_2$ will have repeated real roots?

False

✓ The complementary function shall have one but complex exponential term in case of complex roots?

False

The equation $y''(t) + y' + 2y = 0$ is a homogeneous second order differential equation?

True

✓ The equation and with dynamic repeated negative stable Real

False

These will be imaginary roots in the case of repeated roots?

The second order differential equations will have roots?

The in case of complex roots but terms?

Day: (Sun) (Mon) (Tue) (Wed) (Thu) (Fri) (Sat)

The term of price equation dp/dt is a rate of change in price over time?

True

The term of price equation $(dp/dt + d^2p/dt^2)$ is slope of rate of change in price?

False

It will increase the demand Q_d at increasing rate in equation of price $Q_d = a - \beta p + mp' + np''$ when $m > 0$?

False

It will increase the demand Q_d at increasing rate equation of price $Q_d = a - \beta p + mp' + np''$ when $m = 0$ and $n = 0$?

False

The dynamic stability of price equations when $n = 0$ requires $A_1 = 0$? $P'' + \frac{m}{P} P' + \left[-\frac{\beta + \delta}{n}\right] P = -\frac{a + r}{n}$

False